

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 9, 1999

MEMORANDUM FOR: G. W. Cunningham, Technical Director
J. Kent Fortenberry, Deputy Technical Director

FROM: C. H. Keilers / R. T. Davis

SUBJECT: SRS Report for Week Ending April 9, 1999

HB-Line Criticality Control Violation - On April 1, five pails of TRU waste were placed in storage without assaying for Pu-239 mass as required by the HB-Line Nuclear Criticality Safety Program. An HB-Line operator mistakenly assayed the waste for Pu-238 instead of Pu-239. As part of the HB-Line Nuclear Criticality Safety Evaluation, a criticality scenario that involves inadvertently storing too much fissile material was analyzed and two controls were identified. The first control is the assay of each pail and verification that the mass of Pu-239 is acceptable for the intended storage location. The second control is an independent verification of the Pu-239 mass by a second operator. However, this verification at HB-Line is based on a single assay using a Segmented Gamma Scanner (SGS). In this case, the first operator mistakenly selected Pu-238 on the SGS instrument and failed to notice the error on the instrument printout. The independent verification by a second operator also failed to notice the incorrect isotope on the SGS printout. The error was not recognized until five days later when a facility engineer reviewed the SGS results. After the error was recognized, the five pails were moved to a safe configuration using a special procedure. As a part of the corrective actions, WSRC will modify the assay procedure to emphasize the isotope selection and require independent verification on the SGS printout. The site representative questioned the independence of these two controls given that both controls rely on a single instrument.